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GENTES HERBARUM

Occasional Papers on the Kinds of Plants

By L. H. Bailey

Several Palm Problems

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225. BOTTLE PALM, *Colpothrinax Wrightii*, on the plains of Pinar del Rio, Cuba. All the trees in the foreground are the one species, the two at the right having been cropped for thatch; between these two and also in the right background are small trees of Colpothrinax in which the bole has not yet become tumid. In the far distance are royal palms (*Roystonea regia*) and palmettos (*Sabal parviflora*).

ARTICLE 32. THE PROBLEM OF COLPOTHRINAX.

Recently I have been requested to present a statement in Gentes Herbarum on the systematic standing of the strange barrigona palm of Cuba. It happens that I know this singular palm and have convictions on its taxonomic position.

Barrigona or bottle palm is so named from the pronounced and curious tumidity of the trunk of mature trees: barrigona in Spanish means pot-bellied. The picture printed herewith, Fig. 225, at once identifies the plant.

Its first separate botanical designation was Colpothrinax, but Beccari in 1907 united the genus with the pritchardias of the Pacific islands. I followed Beccari in Standard Cyclopedia of Horticulture, 1916, and retained the palm in Pritchardia, but I restored Colpothrinax in Hortus 1930. When we examine the authenticity of the name Colpothrinax, however, we are confronted by a problem in nomenclature as well as the question of the place of the palm in taxonomy.

The substantive Colpothrinax was a floating name for several years. Thus, the entry "2381. Colpothrinax Wrightii Gris. & Wendl. (3964). Palma barrigona, de la Vuelta Abajo" appears in F. A. Sauvalle's Flora Cubana, 1873, without diagnosis or further comment; this catalogue is prefaced 1868. The first approach to publication of the genus appears to be in a key to Sabal-like palms by Hermann Wendland in Botanische Zeitung, volume 37, p. 148, in 1879. The genus was not described, however, although a very few vegetative characters can be picked out of the brief key, and no species is mentioned. A year previously Wendland had listed "Colpothrinax Wrightii Wendl." in Kerchove's Les Palmiers, 241, again without description or comment.

The first botanical publication of the genus Colpothrinax known to me was by Hooker in Bentham & Hooker's Genera Plantarum, iii, 927 in 1883, and this I adopt as the beginning of the taxonomic generic nomenclature. First diagnosis of the species is apparently by Beccari in Webbia in 1907 (ii, 203) as *Pritchardia Wrightii* (all the other specific epithets having been *nomina nuda*); sufficient placement under Colpothrinax appears not to have been made until ten years ago.

There may be doubt as to the palm Sauvalle had in mind in his genus Colpothrinax, inasmuch as at least two Cuban palms have been called *Palma barrigona*, but the diagnosis of Bentham & Hooker, which is our starting point, clearly indicates the unarmed bottle-palm of Pinar del Rio and Isle of Pines we are now considering.

The name *barrigona* was also applied to the *Cocos crispa* of Humboldt,

226. BOLE OF BOTTLE PALM IN which the shell of the bulge has fallen away, from decay following injury.

Bonpland & Knuth, 1815; this palm is supposed by Beccari and others to be corojo and the name has been transferred as *Acrocomia crispa*. However, *Cocos crispa* was described as an unarmed palm with trigonous nut, and cannot be assumed to apply to an Acrocomia; and the Cuban corojo must soon have another name. The description of *Cocos crispa* calls for a pinnate-leaved palm and therefore Colpothrinax, which is palmate-leaved, could not have been meant. Apparently *Cocos crispa*, HBK. is a confused concept, as pointed out by Morales, and must be dropped as a *nomen perdubium*.

Another *palma barrigona* is the one so-called by Morales in 1865, to which he gave the binomial *Gastrococcos armentalis;* this is the Cuban corojo, the one currently but I think erroneously known as *Acrocomia crispa*.

It seems strange that this very striking palm, Colpothrinax, should have waited until 1873 for a botanical name, particularly when Humboldt had been in Cuba long before that date. Morales does not distinguish it in the discussion of his *palma barrigona, Gastrococos armentalis*.

The taxonomic question is whether Colpothrinax ought to be merged in Pritchardia, as preferred by Beccari. The remoteness of Cuba from the Pacific islands, with no pritchardias native in the intermediate continental regions, raises doubt as to congeneric relationships of the two classes of palms. Britton had questioned as early as 1908 whether the union of Colpothrinax with Pritchardia "can be satisfactorily maintained": Torreya, viii, 240. Beccari, while placing Colpothrinax with the pritchardias, nevertheless separates them as sections in his key by noting the carnose or succulent nature of the

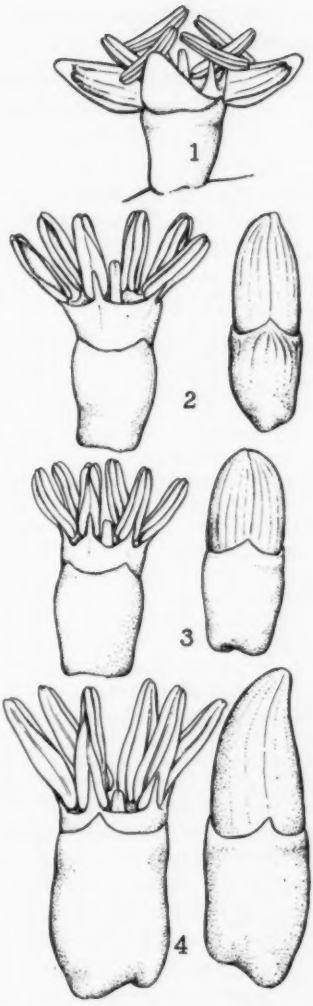
flowers of barrigona (Webbia, ii, 202, 203; Genus Pritchardia, Bishop Mus. 22, 26; Ann. Roy. Bot. Gard. Calcutta, 308; 1907, 1921, 1931 respectively).

In any case, the generic name Pritchardia of Seemann 1862, must be discontinued because of Pritchardia of Unger 1840; the name Eupritchardia, Otto Kuntze 1898, is substituted: see Bailey, Gent. Herb. iii, fasc. 2, 114, 115 (1933).

Contrasts between the two genera may be drawn as follows.

Eupritchardia: Flowers elongate in bud, the petals caducous or falling as a cap and the connate bases of the broad filaments forming a collar above the calyx; anthers standing mostly erect on short projections of the filament collar; carpels coherent or connate, at least at base: fruit with subbasal micropyle, elliptic to oblong and pointed: spadix pendent or long-hanging, sometimes 2 m. in length, the separate or remote branches (if any) arising from loose not elongate-pointed spathelets. Trees with rather slender trunk not ventricose; trunk not covered in woven fibers.—Pacific Islands.

Colpothrinax: Flowers rather short, the petals persisting through anthesis and widely spreading, devoid of an exserted collar of filament bases; anthers versatile and more or less horizontal, pivoted approximately at middle; carpels not connate but united by stylar column: fruit with dorsal micropyle, nearly or quite globular and rounded at apex: spadix divaricate or perhaps at length somewhat arching, ½-1 m. or more long, the contiguous branches attended by large elongate and attenuate spathelets. Tree, at bearing age and thereafter suddenly very prominently swollen at some point (centrally or toward base or apex) and tapering both ways to the slender bole; trunk covered at first with stiff woven fiber which persists among the petioles in the crown.—Cuba.



227. Flowers of Colpothrinax and Eupritchardia (× 4). 1, *Colpothrinax Wrightii* showing versatile anthers, expanded persistent petals, absence of collar above calyx. To be compared with 2, *E. pacifica*; 3, *E. Thurstonii*; 4. *E. kamapuaana*.

The floral characters noted on previous page are contrasted in Fig. 227, showing Colpothrinax and three species of Eupritchardia.*

COLPOTHRINAX, Grisebach & Wendl. ex Benth. & Hook., Gen. Pl. iii, 927 (1883); Drude in Engler & Prantl, Naturl. Pflanzenf., ii, pt. 3, 33 (1889).

Monotypic genus in Cuba, as now known: fan-leaved palm allied to Eupritchardia but differing in the technical floral and carpellary characters contrasted in the preceding paragraphs as well also as in the peculiarly ventricose bole, webby or cloth-like vestiture, and the very short obtuse or rounded free hastula, closely sessile flowers and fruits, perianth parts persistent at base of fruit.

Colpothrinax Wrightii, Wendl.; Bailey, Hortus, 166 (1930).
Pritchardia Wrightii, Becc. in Webbia, ii, 203 (1907); Pomona Coll. Journ. Econ. Bot. iii, 398 (1913).

Unarmed tree 5–10 m. tall, erect but trunk not always straight, bole for a few years stout and cylindrical and closely invested in coarse woven fiber, at length becoming smooth and slender but with a conspicuous bulge twice or more the usual diameter midway or at some other point above or below, the slender upper crane-like part bearing a small compact head of a dozen or more leaves, fibrous vestiture persisting among the petioles and peduncles: leaves palmate, upstanding, bluish-green, much plicate, blade divided to one-third or one-half its length into 50 or more stiff glabrous segments 4 cm. or less broad at middle or base, midrib stout and elevated, side-veins many and prominent, apex acutely bilobed; hastula very short, free from the blade, making an obtuse scarious lip topping the petiole, its margin usually broken; petiole glabrous but bearing long fibers toward base, plano-convex, edges thin: spathes infrafoliar, to 1 m. or more long, not exceeding the foliage, consisting of a few lateral branches issuing from clasping long-pointed tomentose or furfuraceous spathelets: fruit globular or shortly oblong-globular, rounded at apex, about 10 mm. transverse diameter, brown or black, with a firm thin shell; nut striate, practically filling shell but free, albumen plain.

Barrigona, Bottle or Barrel palm. Sandy country in western Cuba and Isle of Pines, occurring mostly in an open colony (barrigonal) or as stragglers from such groves; leaves much employed in thatch and the trees likely to be cropped, with new foliage coming out above. The fruit is eaten by pigs, and canoes are made from the trunks.

This odd palm appropriately bears the name of Charles Wright, 1811–1886, American botanist well known for his early collections in Cuba, as well as in the region from Texas to Arizona, and around the world in the Ringgold-Rodgers Expedition. Type specimen is usually associated with his *no. 3964*, from the Isle of Pines.

* *Eupritchardia pacifica* and *E. Thurstonii*, O. Kuntze, Rev. Gen. Plant. iii, 2, p. 323 (1898).

† *Eupritchardia kamapuaana*, trans. nov.
Pritchardia kamapuaana, Caum, in Bishop Mus. Occas. Papers, ix, no. 5, p. 10, tt. viii, xiv (1930). Cotype in Herb. Bailey.

ARTICLE 33. ACŒLORRAPHE VS. PAUROTIS.—SILVER-SAW PALM.

Acceptance or rejection of the Wendlandian generic name Acœlorraphe has been a troublesome problem for phenicographers. I have used Acœlorraphe but have not been called on until the present to pass judgment on its validity.

Genus Acœlorraphe starts with Wendland in 1879 in a key to Sabal-like genera: Botanische Zeitung, volume 37, 148. The key characters are not sufficient to define the genus properly. Only vegetative leaf characters are mentioned. Wendland stated in a note that he would publish a description of the genus, but apparently failed to do so. He does not propose a species name, nor does he indicate the nativity of the palm or mention a type specimen or cite literature.

It has been stated by Cook (Amer. Naturalist, xlviii, 313–314 note) that the genus was based on Serenoa rather than on the plant we now know as Acœlorraphe, but I find no evidence of this in the Wendland account. Beccari declares, however, that the genus was founded by Wendland on *Copernicia Wrightii*, Grisebach & Wendl.: see Webbia, ii, 108 (1907). On this point Dr. Max Burret wrote me in 1937 as follows: "Wendland's Acœlorraphe is founded on *Copernicia Wrightii* Grisebach & Wendl. leg. Wright 3217. Wendland gave material of this type specimen to Dr. Dammer in December 1900, and I have seen the type specimen of Wendland also in his own herbarium. Therefore it cannot be in doubt." The species *Copernicia Wrightii*, Grisebach & Wendl. was well published in Grisebach's Catalogus Plantarum Cubensium in 1866 (pages 220–221) and the specific epithet has followed the plant subsequently.

The name Acœlorraphe has been employed by many writers on the American palms. Bentham & Hooker merely listed it (corrected to Acœlorrhaphe), without descriptive comment, in Genera Plantarum, iii, 882 (1883). It is fully defined by Beccari in Webbia, ii, 107 (1907) spelled Acœlorhaphe, and two species were transferred to it from Copernicia and Serenoa, being the first tenable specific names in the genus even though nearly forty years had elapsed since the generic name was proposed. Sargent adopted Acœlorraphe in his Trees and Shrubs, ii, 117 in 1911, and followed Beccari in admitting two species of Serenoa to it, a treatment he continued in the second edition of his Manual of the Trees of North America, 1922. In 1913 Beccari continued the use of Acœlorraphe in his Palms Indigenous to Cuba (Pomona Coll. Journ. Econ. Bot. iii, 391), and presented his reasons for so doing.

Latest botanical account of Acœlorraphe is by Bartlett in 1935 in Publication no. 461 of the Carnegie Institution of Washington, discussing Mexican and Central American species. To the genus he transferred *Brahea Pimo*, Becc. and *B. salvadorensis*, Wendl., and adds two new species, *A. Cookii* and *A. pinetorum*. Bartlett finds "no distinction of generic importance" between Acœlorraphe and Serenoa. He also raises doubt on the standing of the former genus when he says, "If Acœlorraphe is not to be considered as validly published" then his new species may be transferred to Serenoa; on this point I am not convinced. (Fig. 229).

In the meantime, 1902, O. F. Cook had founded the genus Paurotis in his study of Bahaman palms and the species *Paurotis androsana*, without mention of Acœlorraphe: Mem. Torrey Bot. Club, xii, 21. He cites locality and specimen. Britton took up the genus Paurotis in his North American Trees, 1908. He made the combination *Paurotis Wrightii* (*Copernicia Wrightii*, Grisebach & Wendl.) and united with it *Serenoa arborescens*, omitting any mention of Acœlorraphe. John K. Small treated these palms

228. CHARACTERISTIC YOUNG CLUMP OF *Paurotis Wrightii* in the southern Everglades of Florida.

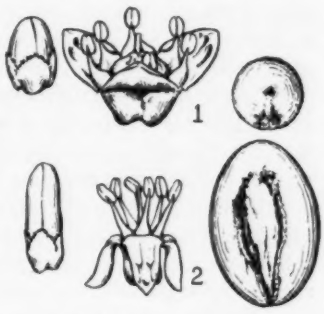
as Paurotis in supplement to the second edition of his Flora of the Southeastern United States in 1913, and continued this disposition in Journal of the New York Botanical Garden 1922 and in his Manual of the Southeastern Flora 1933. Britton and Millspaugh adopt Paurotis in Bahama Flora, 60, in 1920.

With these statements before us, we are sufficiently informed to determine which of the two generic names, Acœlorraphe or Paurotis, shall be adopted for these American palms. We have good usage to support either choice. Let it be said that choice should not be made on the basis of personal preference in names, but on the merits of the case even though it is scarcely possible to eliminate doubts. It is time we came to a uniform practice among American botanists on the nomenclature of this widespread palm.

Acœlorraphe is more than a *nomen nudum*. From the key one learns that the palm has palmate leaves and armed petioles; it is bracketed between Brahea and Copernicia, being separated from both; the generic name itself means "hollow seed" when translated from the Greek and may be considered to be descriptive. Yet Wendland himself apparently did not consider it to be a published name in his key inasmuch as he footnotes a statement that he intended shortly to publish a description of it,—"Die Beschreibung dieser neuen Gattung soll in Kurzem nachfolgen." We do not know why he failed to follow the intention. On the other hand, the lack of nativity or of a species epithet or any citation of specimens or even a mention of the generic name itself in the discussion following the key show that the proposal of the genus was indefinite and incomplete.

We may be allowed to discount the practice of Beccari in the positive use of Acœlorraphe inasmuch as he wrote at a time when nomenclatorial practices had not become stabilized in palms; we have been obliged in recent time to disagree with many of his treatments.

In contrast to these defects is the assurance that there is no doubt of the validity of Paurotis. I plan to use Paurotis hereafter, although I may redefine the genus and not transfer to it all the species that have been described under the title Acœlorraphe. Burret of Berlin-Dahlem, recognized world student of palms, writes me he now considers Paurotis the better name to adopt, and cites Harms as of the same opinion.



229. FLOWERS AND SEEDS OF PAUROTIS AND SERENOA. 1, *Paurotis Wrightii*, flower × 7 and seed × 2. No. 2, *Serenoa repens* × 3 and × 2 respectively.

The citation of literature becomes as follows:

PAUROTIS, O. F. Cook, in Mem. Torr. Bot. Club, xii, 21 (1902).

Acoelorraphe, Wendl. in Bot. Zeit. xxxvi, 149 (1879), *nomen perdubium.*

Acanthosabal, Proschowsky, in Gard. Chron. ser. 3, lxxvii, 91, figs. 35, 36 (1925); Bailey, same, 396, figs. 180, 181.

Paurotis Wrightii, Britton, in Torreya, viii, 239 (1908); N. Amer. Trees, 141 (1908).

Copernicia Wrightii, Grisebach & Wendl. in Cat. Plant Cuba, 220 (1866).

Serenoa arborescens, Sarg. in Bot. Gaz. xxvii, 90 (1899).

Paurotis androsana, O. F. Cook, in Mem. Torr. Bot. Club, xii, 22 (1902).

Acoelorraphe Wrightii, Becc. in Webbia, ii, 109 (1907).

Acoelorraphe Wrightii var. *novogeronensis*, Becc. l. c. 113.

Acoelorraphe arborescens, Becc. l. c. 113.

Acanthosabal cæspitosa, Proschowsky, in Gard. Chron. l. c. 92.

The species *Paurotis Wrightii* is dedicated to Charles Wright, whom we have met in the preceding paper. It is based on his *no. 3217* from Cuba. The species ranges in low or moist places from the Everglades of southernmost Florida, where it grows on hammocks and along margins (Fig. 228), to the Bahamas and Cuba. On the continent westward, as in British Honduras and Guatemala, it is represented by related species.

The silver-saw palm is gregarious. It grows in clumps from one root, although in some cases only a single trunk may persist to maturity but in old native stands there may be a hundred trunks like bamboo poles. As a planted palm it makes its best effect as a cluster of slender boles, fan-shaped silver-bottomed leaves, saw-edged petioles, and out-thrusting arms of flowers and fruits at the top. Upper surface of leaves is light green and sometimes silvery, until they begin to die. It may grow 30 to 40 feet tall. Very dense clumps are sometimes seen, the trunks or stems being hidden by the mass of foliage; this foliage canopy should be encouraged in plantings, and the stand given plenty of room. Young masses of the silvery foliage are particularly attractive when the area is not too dry.

Flowers and seeds of *Paurotis Wrightii* and *Serenoa repens* are seen in Fig. 229. The contrasts are marked. Paurotis flowers are very small. Fig. 228 shows a clump of young silver-saw palm, not yet arrived at bearing age, in the southern Everglades, Florida.

A good general account of the silver-saw palm was published in 1922 by the late John K. Small in the Journal of the New York Botanical Garden and also separately printed. Small called it the saw-cabbage palm, undoubtedly to continue his use of the name "cabbage palm" for the re-

lated palmettoes or sabals; but this name is employed in the tropics for any palm of any genus in which the "cabbage" or terminal bud is eaten, and there are many kinds of them; in the western hemisphere perhaps the name "cabbage palm" is most frequently applied to the royals or roystoneas. I do not know of any silver-leaved palm with saw-toothed petiole in the northern palm country of the western hemisphere to which the name "silver-saw" may be more appropriately applied; there are glaucous-leaved clumps of *Serenoa repens*, but usually the leaves of that species are green. In Cuba this palm is called *guano prieto:* Roig, Diccionario Botanico.

ARTICLE 34. RHYTICOCOS.—THE OVERTOP PALM.

As long ago as 1763 the Austrian traveller, Count Jacquin, published an account of a palm on the island of Martinique in the farther West Indies, without picture or a sufficient description. From that day until this the palm has remained practically unknown to American botanists and horticulturists although attributed to Jamaica and other islands. We may now make an effort to understand it; to this end I have searched on Martinique and Guadeloupe and lately W. H. Hodge has sent me material from the British island Dominica that lies between the two French islands.

The account in Jacquin is far from satisfactory for identification. Dr. Rechinger writes me there are no authentic specimens in Naturhistorisches Museum in Vienna, where Jacquin materials are preserved. We must therefore do the best we can to base the species on the description in Jacquin's Selectarum Stirpium Americanarum Historia, 1763, pages 277 and 278, and leave it to future exploration to determine whether subsequent authors have interpreted his palm correctly. In that account the palm was referred to Cocos. It was said to be like the coconut, with spathe and spadix hardly different; flowers he had not examined. The fruits of his palm were size of a goose egg, not edible, the nucleus and liquor being very bitter, hence his binomial *Cocos amarus* (amarus, *bitter*). The tree sometimes reached 100 feet in height. The French inhabitants of Martinique called it *Palmiste amer* or bitter palm. It grew in dense mountain woods.

This comprises the original diagnosis of the species, but Jacquin reveals an interesting side light on the species in saying that trunks of the young trees scarcely twelve feet tall were slit longitudinally, that the palm beetle lays eggs in the wound, and that when the larvæ are grown and fat and take on a yellowish color they are roasted and make delicious food. I know this great edible grub, or a similar one, in palm trees of the farther islands; it is an insect (*Calandra palmarum*) well known to the inhabitants of those regions.

Botanical history of this striking palm is not extensive or complicated. Martius took it up in his Palmetum Orbignianum under the name *Syagrus amara* and attributed it to Martinique and others of the Antilles without specifying which ones of the islands except that he cites Plumier's *Palma coccifera altissima*, presumably Haitian, as a synonym. A similar account, in which the Palmetum Orbignianum is cited, appeared in the great Historia of Martius in 1845, together with a picture of the fruit; and, singularly enough, the Historia treatment is cited in the Palmetum Or-

bignianum, showing that these two works were prepared contemporaneously, whatever may be their dates.

The palm appeared again in Grisebach's Flora of the British West Indian Islands, 1864, as *Syagrus amara*, Martius, ascribed to the "Caribbean islands" with particular mention of Jamaica which was cited on the basis of material at Kew. The Director of the Royal Botanic Gardens at Kew now informs me they can find no trace of such records, nor has the palm been found in the modern explorations of that island. I eliminate the Jamaican nativity, the more readily as we now have a consistent range for the species on the Lesser Antilles. The Director informs me that they have fruit specimens in their Museum from Dominica and Montserrat, whether wild or planted is not stated.

230. Head of Overtop palm, *Rhyticocos amara*, island of Martinique, showing the hanging spathes.

The next event is the founding of a special monotypic genus for the palm and the consequent *Rhyticocos amara* by Beccari in the periodical Malpighia in 1886, with picture of the fruit; this treatment was enlarged by him in his monograph of the Cocos tribes in 1916. In both cases he retains the Jamaican nativity although assigning the palm specially to Martinique.

We are now ready to describe the palm from recent adequate collections in the wild and to present the first pictures of the tree and its larger parts. Heretofore there have been no published pictures except of single detached museum fruits.

RHYTICOCOS, Becc. in Malpighia, i, 350, t. 9 fig. 2 (1886); Il Genere Cocos, in Bibl. Agraria Coloniale, x, 11 (Florence 1916).

Segregate from Cocos; differs in erect very slender trunk, furrowed or sulcate spathe, pistillate flowers ovate or conic in bud and petals valvate at apex, albumen of seed ruminate; from related segregates in petioles unarmed, nutlet with thick bony walls, albumen hard and narrowly hollowed in center. Species 1.

Rhyticocos amara, Becc. l. c. 353. OVERTOP PALM. Figs. 230–236.
Cocos amarus, Jacq. Select. Stirp. Amer. Hist. i, 277 (1763).
Syagrus amara, Martius, Hist. Nat. Palm. iii, 291, t. 166 fig. ii (1845); Palmetum Orbignianum, 132.

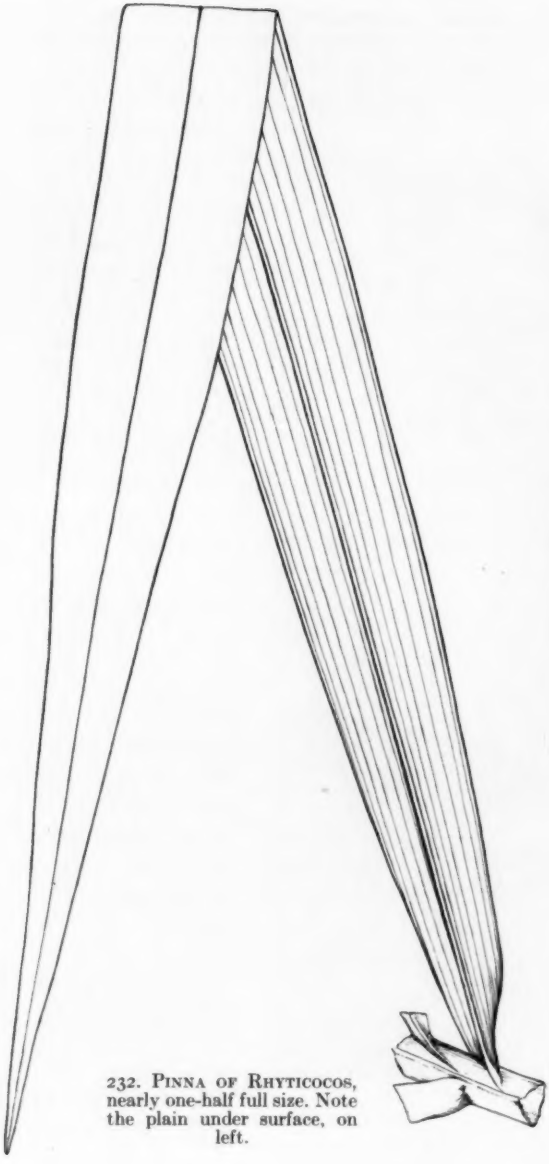
Tall slender straight single-trunked unarmed pinnate-leaved tree to 15 or 20 m. and perhaps more in height, bole 1-2 dm. thick and the rings becoming indistinct, more or less swollen or bulbous at base; crown rather dense, of many widely spreading long leaves, and on the under side of several prominent woody hanging glabrous spathes (Fig. 230): leaves 2-3 m. and more long (perhaps twice that length on large trees), bright shining green, glabrous, pinnæ 30 and more on either side the rachis, rather close together and sometimes more or less clustered, hanging, central ones 1 m. long and 3-4 cm. broad, firm in texture, strongly midribbed above and also with many weak parallel side ribs and rather distinct cross-hatching, plain underneath, apices long-attenuate and shortly bifid, margins smooth, those at base and apex of rachis much smaller and thinner and at base more scattered; petiole long-sheathed, that of large leaves about 1-2 m. long, plane above, convex or ridged underneath, perhaps fibrillose on margins below, base at point of attachment about 14 cm. and more across: spadices interfoliar, soon pendent, 70-100 cm. long and little if any surpassing the petioles, consisting of a single strong central rachis and many stout terete lateral simple rachillæ that bear a few pistillate flowers near the base and abundant staminate flowers on the remaining length; peduncle inside spathe blunt-edged and double convex in section, ½ m. or more long, pubescent or furfuraceous; spathe double, the outer one or valve papery and soon caducous, about 35-40 cm. long, thin-edged; main or inner spathe woody at maturity, covering the spadix, light colored and glabrous, prominently sulcate or grooved, 15-25 cm. broad at middle and tapering to a long 2-edged beak: pistillate flowers large at full anthesis, 10-15 mm. long,

the scarious envelopes loosely imbricate, 3 spreading styles protruding; staminate flowers 10 mm. long, the obtuse faintly striate narrow petals long and conspicuous, calyx very short, stamens 6 and nearly equalling the petals with short broad filament, pistillate short and 3-parted: fruit oblong, nearly or about 5 cm. long when fresh and about 4 cm. thick, short-pointed, orange at maturity, the accrescent perianth short and appressed, sarcocarp thin and fibrous and closely adherent to the bony nut which is 1-celled although bearing 3 pores or marks at apex; albumen hard when mature and dry, white, fibrous, usually cavitous at center, ruminate over its periphery or outer part with wall projections 2 or 3 mm. deep.

231. OVERTOP PALM, *Rhyticocos amara*, on the public square in Lamentin, Martinique.

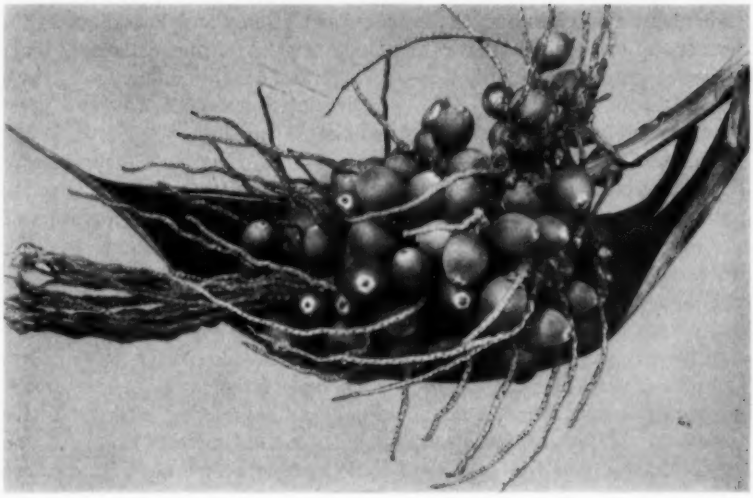
On hillsides, bluffs, and in forests, Martinique Dominica, Guadeloupe. In the French islands it is now infrequent in the wild and I saw only scattered trees, but it is often seen about buildings and in grounds or public places either planted or spontaneous.

On Dominica Hodge reports it in xerophytic scrubby coastal forests east of Dublanc, altitude 20-200 m.; in moist forests in val-

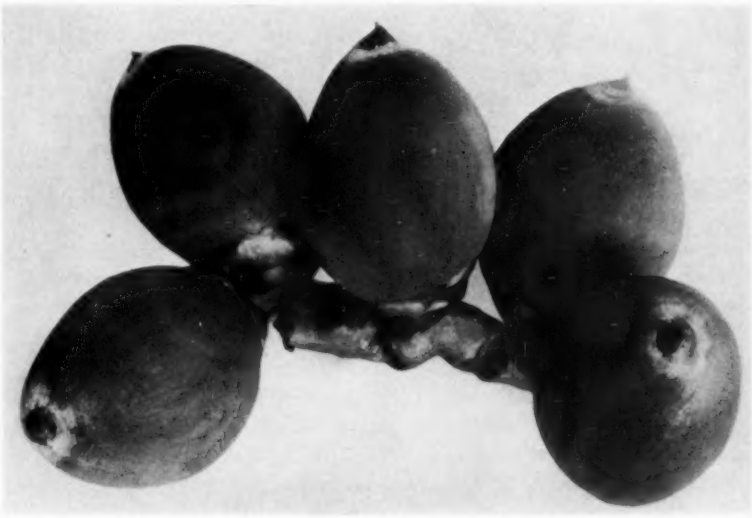


232. PINNA OF RHYTICOCOS, nearly one-half full size. Note the plain under surface, on left.

233. SPATHE OF RHYTICOCOS. About one-fifth natural size.



234. Spadix of Rhyticocos at fruit; staminate strands, now bare, project in all directions. This spathe was 31 inches long not counting the curve.



235. Fresh fruits of Rhyticocos, approximately three-fourths full size.

ley of Hampstead River about two miles from mouth, LaChaudiere, altitude about 100 m., known in the patois as Coconay and Yattahou. At the former station he speaks of it as an abundant palm forming colonies at lower altitudes; grows to a height of 30–40 feet; trunk 6 inches in diameter; leaves 15–20 feet long, petioles 6–7 feet; spadices often six to the tree and 3 feet long; the cabbage (terminal bud) is edible.

In the French islands this palm is known as *Petit coco*. Père Duss, in his "Flore phanerogamique des Antilles francaises," 1896, states that the palm grows wild in the lower hills, but one usually sees it in a cultivated state in parks and about houses, where it is grown for ornament.

Rhyticocos is little known as a planted tree outside its native regions, although it is to be expected in botanic gardens: specimens from the botanic garden on Trinidad and at Singapore are in my herbarium. I have seen trees in southern California supposed to be this species; one of them has now fruited and it turns out to be one of the forms of *Arecastrum Romanzoffianum*. This palm should add an interesting and attractive variety to plantations in the warmest parts of the United States.

We have noted (on page 366) that Jacquin pronounced the nucleus and liquor of his palm very bitter; this statement must refer to young or immature nuts. My friend, M. Adrien Questel of Guadeloupe, writes that the nuts decay on the ground and are not eaten. In the islands I was told that the fruit is sometimes eaten by children, but I saw no evidences of it.

236. Flowers of Rhyticocos (× 2). Left, pistillate flower; others, staminate showing entire flower, pistillode, petal, stamen, the three details × 3.

ARTICLE 35. THE GENERIC NAME COROZO.

Two species of Elæis or oil palm have been attributed to the western hemisphere, one of them (the African *E. guineensis*) as a spontaneous or naturalized palm, and the other (*E. melanococca*) as native in the Panama and Costa Rica region. When I came to a study of the Panama palms in 1932, two conclusions were forced on me in respect to the American species: that the native oil palm is not congeneric with the African; that the name *melanococca* does not belong to it. See Gent. Herb. iii, fasc. ii (1933).

Under these conditions, choice was required for a tenable generic name for the native American species. The genus Alfonsia was published by Humboldt, Bonpland and Kunth in 1815. The name Corozo, Giseke, 1792, was also in the literature as a validly established genus: Jackson, Ind. Kew., 1895; Dalla Torre & Harms, Gen. Siphonogamarum, 1900; Tom von Post, Lexicon, 1904. I adopted the name Corozo and attached to it the specific name *oleifera*, brought over from *Alfonsia oleifera*, HBK. Giseke based the genus Corozo on an illustration and note of Jacquin 1763: Select. Stirp. Amer. Hist., i, page 282, ii, t. 171, fig. 4.

In adopting the generic name Corozo I was under obligation to follow the Rules of Nomenclature rather than a personal preference. I took advice from a professional interpreter of the Rules as to the validity of the publication by Giseke, and also called attention to the use of the word *corozo* or *corojo* as a vernacular for different kinds of palms. Technical characters of separation were drawn by me, between the American and African oil palms, as evidence of their generic distinctness.

Recently Dr. O. F. Cook has questioned the propriety of adopting the generic name Corozo (Nat. Hort. Mag., Jan. 1940, 29), asserting that "there is nothing to show that Giseke, any more than Jacquin, proposed to adopt Corozo as a generic name." In my discussion of the case, I called attention to the statement of Giseke that a star against a name indicated it was a genus new since Linnæus (Gent. Herb. l.c. 53); he had placed an asterisk before the regular entry of Corozo. Giseke's statement is as follows on page 37 of Prælectiones in Ordines Naturales: "Genera, quæ Astericum præfixum habent, *nova* sunt, i.e. Linnæo non dicta." This establishes his intention to propose a new genus, Corozo; moreover, on page 42 he gives a technical diagnosis of the genus. The purpose of his publication on palms, as he explains, was to add to Linnæus the findings of recent authors, thereby to give collectors ready access to the literature up to his time. In the account on his page 92 there is variation in the form of the entry, and Cook

presents a photograph of that page to cast doubt on the validity of the genus; but the genus was founded on page 42.

Cook argues that use of the word *corozo* as a vernacular long before Giseke should disqualify it for technical service but this does not affect employment of it as a generic name in botanical nomenclature. Jacquin used the name *corozo* as a vernacular: "Alia Palma in territorio Carthagenensi occurrit, *Corozo* incolis dicta"; Giseke published it as a genus. Of course Jacquin does not give a specific name, nor, apparently, does Giseke propose to do so. The latter author has an entry "Corozo caribæis," a Latin form undoubtedly meaning, "[It is] Corozo to the Caribbeans." Index Kewensis does not adopt this phrase as a binomial; see also statement in Gent. Herb. iii, p. 53.

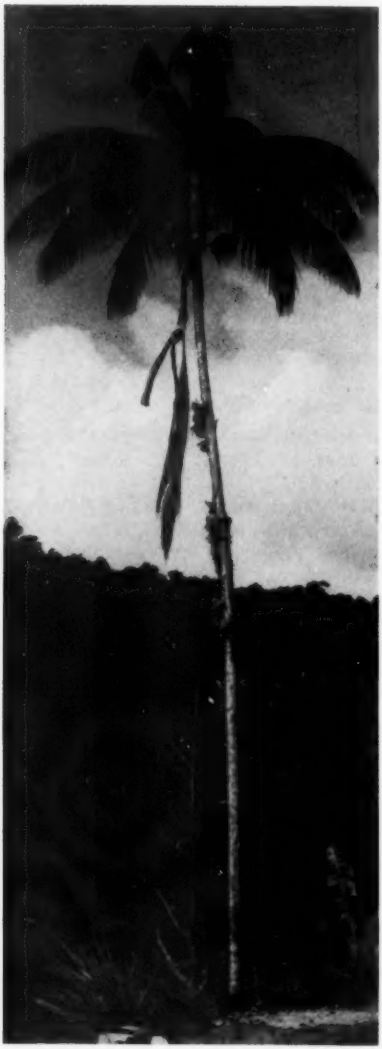
Under all these circumstances I have no alternative, so far as present evidences are involved, but to write the binomial *Corozo oleifera* (HBK) Bailey, for the Panama oil palm. What the Costa Rican and Brazilian oil palms may be cannot yet be stated.

ARTICLE 36. EUTERPE IN WEST INDIES.

† **Euterpe dominicana,** spec. nov. § Euterpopsis. Fig. 237.

Arbor tenuis, inermis: truncus solitarius: folia 3-5 m. longa, lætevirentia; pinnæ multæ, pendentes, angustæ, longo-acuminatæ, glabræ; costa fortis prominensque; venæ laterales multæ, non crassæ; margo crassus; maximæ pinnæ 4-5 cm. latæ ad medium: spadices infrafoliares; rachillæ graciles, angulatæ, pubescentes, cinereo-albæ, 5-7 mm. diam.; flores permulti, parvi, in alveolis immersi, 3-4 mm. longi, flores pistillati minores quam staminati, sepala florum staminatorum imbricata ciliataque, petala valvata: fructus rectus, depresso-globularis, niger, 9-10 mm. diam., stylus persistens; semen liberum, 7-8 mm. diam. tenuibus applanatisque fibris tectum; albumen durum, non ruminatum, embryo apicale.

Tall, slender, 15-25 m., bearing an open spreading head of 12-18 long graceful leaves of which the middle ones are nearly horizontal, pinnæ drooping from the rachis, the tree with much the aspect of *Roystonea oleracea* even to a hanging delapsed leaf; trunk single, obscurely ringed, straight or when tall perhaps somewhat out of perpendicular, about 3 dm. diam. at base, furnished at top underneath the leaves with a crown-shaft (leaf-bases) 1.5-2 m. long; leaf-sheath much expanded, glabrous, closely ridged on both surfaces: leaves light green, 3-5 m. long, bearing very many pairs of narrow moderately firm glabrous pinnæ; rachis about 4 cm. broad at base, flat-convex underneath, glabrous except for the scurf that weathers away; pinnæ at center of leaf about 1 m. long and 4-5 cm. broad at middle, very long-pointed, midrib strong and elevated on both surfaces, side veins several on either side but not prominent and many close fine intermediate veins, margins smooth but elevated or thickened, all other pinnæ much narrower: spadices 5 or 6, borne at bottom of crown-shaft, standing horizontally or nearly so when spathes have fallen; peduncle short, about 25 cm. long including the broadly expanded base, the main part double-convex in cross-section and edges obtuse, close-pubescent but weathering nearly smooth; rachis stout, about 4 dm. long, bearing many terete ascending rachillæ or strands that are compactly tomentose-pubescent and after flowering deeply pitted with alveoles and 4-5 dm. long; flowers closely placed on the gray-white angled rachillæ which at flowering time and in the dry state are 5-7 mm. thick; staminates very numerous and borne on the whole length of the strands and sunken at base into the alveoles, on the pattern of three with the central flower pistillate but commonly one or two flowers suppressed, 3-4 mm. long, triangular, 3 broad ciliate sepals strongly imbricate, 3 projecting nerved petals connivent, valvate and forming a cone, the lobed pistillode short and stout, 6 stamens erect, sagittate large anthers on short straight filaments; pistillates rather smaller than staminates and standing beneath and between them, pistil closely involved in the tight perianth-parts, the minute calyx remaining in the alveole and one ciliate petal inclosing the others: fruit black at maturity, globular but flattened at ends, style persisting at the apex, 9 or 10 mm. diam., not equilateral, glabrous, tightly sessile in its alveole, the explanate accrescent



237. THE HANDSOME TALL PALMISTE of Dominica, *Euterpe dominicana*. The crown-shaft is at the top of the trunk above the flower-cluster balls; below it are discharged old leaves caught on the clusters and hanging. Epiphytes are seen midway of the bole.

floral parts closely applied to base; seed free inside the exocarp, 7-8 mm. diam. including the thin tight fibers; albumen very hard, white, plane, embryo apical.

Dominica, British West Indies, W. H. and Barbara T. Hodge, abundant in moist forests bordering Pegoua River in vicinity of Deux Branches, Concorde Valley, *no. 3494* (type); common in rain-forest bordering Imperial Road, Sylvania, altitude 549 m., *no. 1168*. Known as Palmiste; cabbage or terminal bud edible.

Close ally to this species is *E. Broadwayæ* of Tobago and Trinidad, which differs in being sometimes gregarious (trunk more than one), with fluffy-tomentose brownish terete rachillæ, flower-buds larger and broader and mostly placed singly, fibers on seed chaff-like and looser, seed smaller. From *E. oleracea* and *E. edulis* of South America *E. dominicana* differs in habit, plain (not ruminate) albumen, closely tomentose rather than nearly or quite glabrous rachillæ, and other details. From *E. Langloisii* it is separated by its greater size and its fruit with apical rather than lateral stigma or beak as well as rachillæ more slender and more pubescent-tomentose, pinnæ broader. The common West Indian *E. globosa* is separated by its deeply ruminate albumen and many other characters.

Mention of *Euterpe Broadwayæ* calls for explanation of the name inasmuch as it is commonly

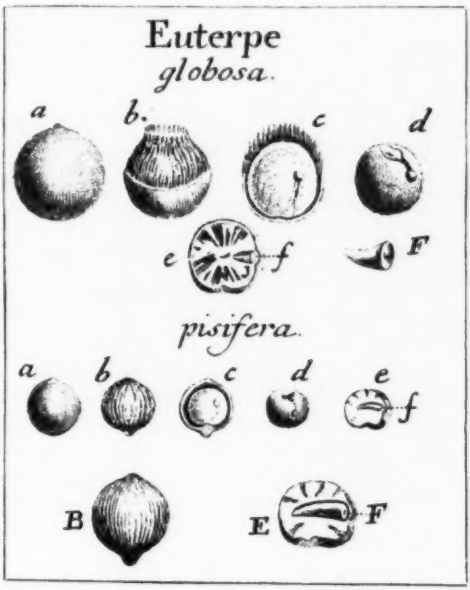
written *Broadwayana*. The formal technical diagnosis is by Beccari in Fedde, Repertorium specierum novarum regni vegetabilis, xvi, 436 (1920) as *Euterpe Broadwayana*. In 1916, however, it was briefly described as *E. Broadwayæ*, Becc. (n. sp.) by W. E. Broadway in his Palms of Tobago in Bulletin of the Department of Agriculture, Trinidad and Tobago, xv pt. 5, p. 174, "named after the discoverer's daughter, Elsie." The Broadway account is brief, but it cites localities on Tobago where it was first found, "trunk single or several together," "flowering parts fluffy in which are subsequently imbedded the fruits," which are two good characters of separation. I had talked with Broadway about the case; he wanted the palm named particularly for his daughter and he annotated my copy of the Bulletin in 1922 to the effect that *Broadwayæ* was the name first adopted by Beccari and that the subsequent publication in 1920 was *Broadwayana*. Broadway material of the species from Tobago, as well as from Trinidad, is before me. Some of it is ticketed by Broadway, "Euterpe Broadwayæ Becc. (n. sp.)".

Validity of the generic name Euterpe

Inasmuch as the applicability of the name Euterpe to western hemisphere palms has been challenged, we may examine the case now that we are involved in the genus.

Euterpe is a genus of New World pinnate-leaved unarmed palms of 39 species as accepted by Burret in Engler Botanisches Jahrbücher, lxiii, 1929, to which others have now been added. The species range from Cuba southward in many of the West Indies, Nicaragua to Bolivia, Paraguay and Brazil, with many kinds in Colombia. For the most part they are palms of intermediate stature, often delicate and graceful in foliage and decorative when planted.

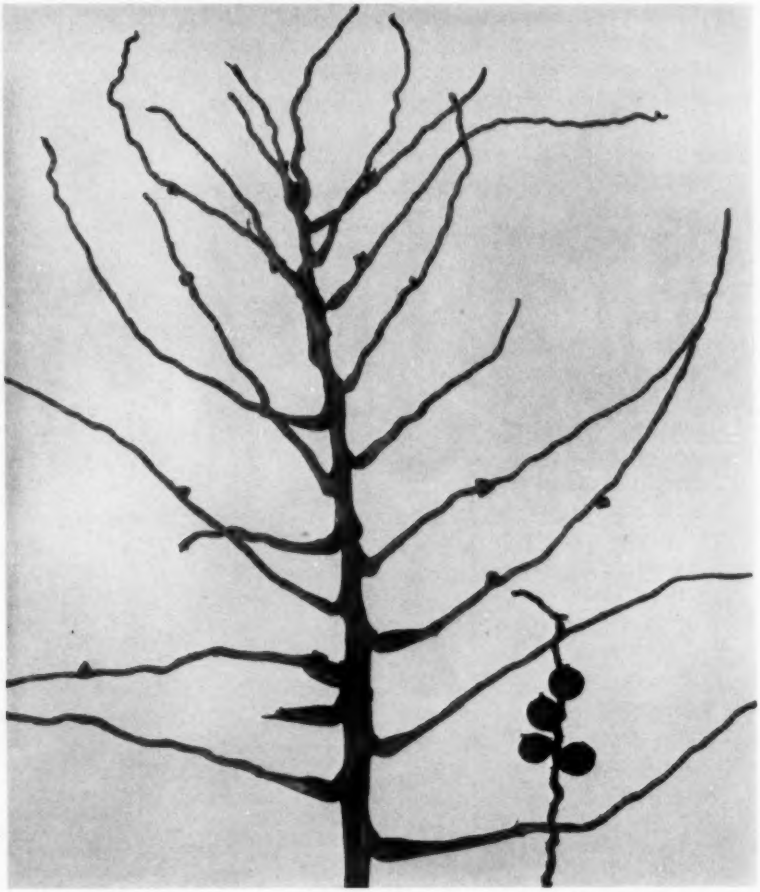
Validity of the generic



238. THE GENUS EUTERPE by Gaertner, 1788, t. ix. See explanation on page 379. *E. pisifera* (except fig. B) is *Heterospathe pisifera*.

name Euterpe has been challenged, as by O. F. Cook in his study of the Puerto Rican palms published in Bulletin of the Torrey Botanical Club for October 1901. In 1939 he again discards the name Euterpe for New World palms (Smithsonian Misc. Collections, 98, no. 7), saying that "the first specific name, *Euterpe globosa*, was proposed by Gaertner in 1792 for a palm described and figured in 1741 as *Pinanga sylvestris globosa* by Rumphius," who was considering a palm of Amboina. The name "was borrowed without warrant from an East Indian genus not represented in America."

The genus Euterpe starts with Joseph Gaertner in 1788 in his work on



239. FRAMEWORK OF SPADIX, by three-fifths, of *Prestoea pubigera;* fruit at lower right.

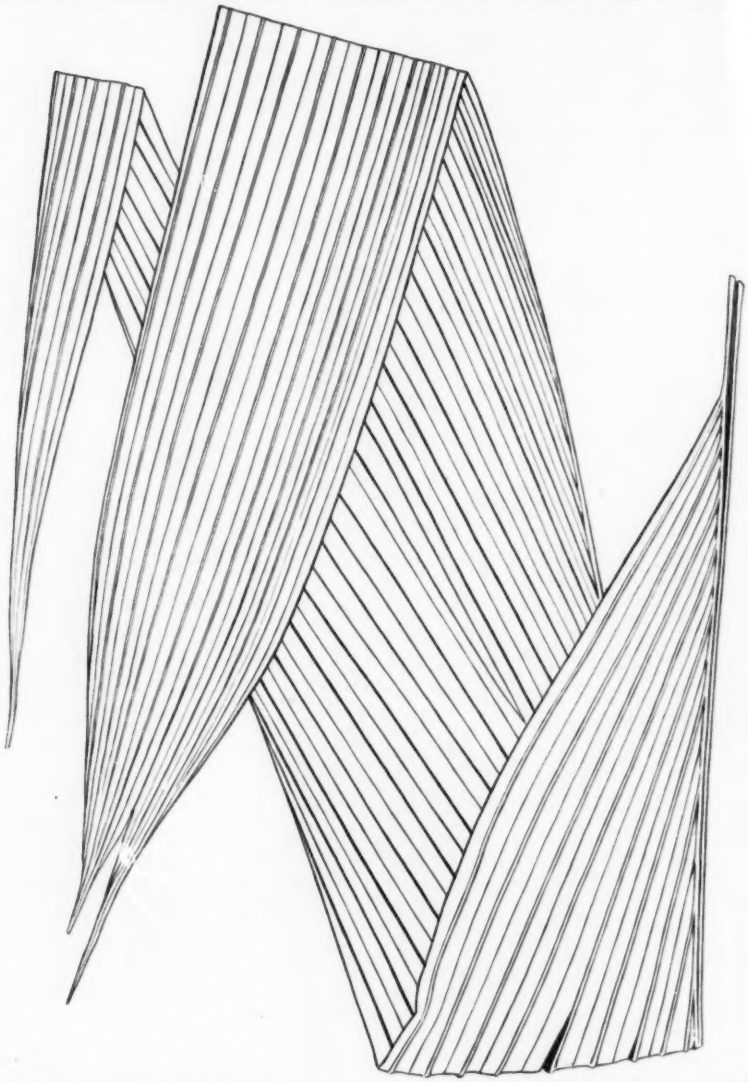
fruits and seeds of the world, De Fructibus et Seminibus Plantarum, i, page 24. The account comprises a brief generic diagnosis in Latin, and similar diagnoses of two species, *Euterpe globosa* and *E. pisifera;* each species has a good picture of the fruit. The generic diagnosis is itself not sufficient in these days, but that is also true of any number of early cases, and other evidences must be sought. These evidences in the case of Euterpe are the full description of the fruit of the first or type species, *E. globosa*, and its picture. Gaertner did not know where the nuts came from. He supposed the Rumphian picture of an East Indies plant to be the same; misquoted synonymies are abundant in early botanical work, before plants (and particularly palms) were well understood. Gaertner does not found *Euterpe globosa* on an Asian palm the name of which he cites mistakenly, but on the fruit and seed before him: this fruit is undoubtedly the West Indian plant now under discussion.

In the century after Gaertner application of the name Euterpe was various and there is confusion in the literature, most of which is not now significant. We must go back to the picture, which is clear and detailed, and to the Latin diagnoses, and judge the case by contemporaneous standards of nomenclature. His diagnosis does not apply to the oriental palm of Rumphius.

Gaertner's picture of the Euterpes is reproduced about same size in Fig. 238. The letters mean: *a*, fruit, half size; *b*, fruit showing the fibers underneath the exterior; *c*, longitudinal section, showing the seed in natural position; *d*, seed inverted to show the umbilicus (raphe); *e*, albumen in vertical section; *f*, embryo in position, natural size. E, embryo enlarged. The details of Gaertner's *Euterpe globosa* and his diagnosis are sufficient representation of the species we know by that name. The Rumphius synonym cited by Gaertner is *Calyptrocalyx spicatus* of Amboina, according to Merrill, An Interpretation of Rumphius's Herbarium Amboinense, 119, Bureau of Science, Manila, 1917. In 1883 J. D. Hooker had made the necessary elision of the Rumphius synonym from Euterpe without weakening the acceptance of the genus: Gen. Plant., iii, 896. The pictures of *Euterpe pisifera* in Gaertner represent *Heterospathe pisifera* (except the item B) according to Burret in his paper on Euterpe (p. 76) cited at the beginning of this article. In that paper Burret accepts the palm of the West Indies as *Euterpe globosa* of Gaertner, and says the pictures are good and cannot be misunderstood (Die Abbildungen sind gut und nicht misszuverstehen). The case had been reviewed by Beccari in 1912 (Palms Indigenous to Cuba) with the same conclusion.

In view of this testimony I must still adhere to the conclusion I reached on a former occasion when I decided to hold the generic name Euterpe to its customary application in American palms: Gent. Herb., iii, 354-356 (1935). The case is as clear as any number of other accepted generic names.

All this does not mean that the genus Euterpe is homogeneous or that it may not be divided when our knowledge of the group is more mature. This possibility I raised in my paper just cited, page 354, in which I question whether palms with ruminate and plain albumen may be of the



240. Pinna, deeply lobed and again bifid at apex, of *Prestoea pubigera* (×⅓).

same genus. Burret noted this query and in a recent paragraph (Notizblatt, xiv, 328, 1938) states his conviction that the genus is not divisable on this character. He also revises his subdivision of the genus into three sections:

I. *Euterpotypus*, Burret (*Euterpe* sensu stricto, Becc.). Albumen ruminate: leaves of the juvenile plant simple and bilobed.

II. *Euterpopsis*, Becc. Albumen equable or plain: leaves of the juvenile plant pinnatisect, the segments flabelliform and radiate: pistillate flowers and fruits somewhat sunken in the rachis: filaments of anthers scarcely geniculate but inserted rectilinearly: peduncle somewhat shorter than the rachis.

III. *Meteuterpe*, Burret. Albumen equable: flowers and fruits small, scarcely sunken; staminate flowers with long geniculate filaments: peduncle somewhat longer than the rachis of the spadix: petiole long: small palms with small spadix that is slender and bears few branches.

Species of Euterpe reported from the West Indies are the ubiquitous *E. globosa*, *E. Broadwayæ* of Tobago and Trinidad, *E. pubigera* (Prestoea) and *E. Langloisii* on Trinidad, *E. montana* (Prestoea) on Grenada.

The particular marks of Euterpe are: spadix infrafoliar and slender-branched, spathes 2, flowers imperfect with both sexes in the same spadix, and free or partially immersed in axis, stamens 6, sepals small, petals imbricate or valvate and free, fruit 1-celled and globose, small with a more or less succulent exterior and fibrous covering of the seed, stigma lateral or at least not strictly central, embryo lateral or nearly apical. In most of the species the albumen is distinctly ruminate from parietal intrusions, but in some of them it is wholly plain. Such differences are usually marks of separate genera in palms, with other supporting evidences.

241. PINNÆ OF *Prestoea montana* (×¼).

Four other generic names have been applied to the group we customarily know as Euterpe, two in the ruminate group and two in the non-ruminate. Some of these may afford a basis for segregation as knowledge of the group develops.

242. Spathe of *Prestoea montana*, by one-third. The upper or main spathe is beginning to dehisce, disclosing the spadix inside.

In the present review we are concerned with the Euterpes of the West Indies, particularly of the Lesser Antilles. In my discussion of 1935 I had written that *E. globosa* "we shall meet again in a subsequent paper," a hope not yet fully satisfied. It is strange, or at least noteworthy, that while Roystonea, Geonoma, Acrocomia and Sabal differ in species on the main islands, *Euterpe globosa* is held to be conspecific from Cuba to Tobago. I have collected the plant on several of the islands, have material from others, and have consulted the National Herbarium, in evidence of this conclusion; I do not forego the possibility that we may find specific or at least varietal differences when sufficient material accumulates.

The case of Prestoea

Genus Prestoea was established by J. D. Hooker in 1883 in Bentham & Hooker Genera Plantarum. It comprised a single species in Trinidad, British West Indies, a plant known to Grisebach as *Hyospathe pubigera*. From Hyospathe the genus differs technically in a 1-loculed rather than 3-loculed ovary, stigma below the apex of fruit rather than basal, albumen ruminate. From Euterpe it differs in bearing basal and erect not parietal and hanging ovules, leaf-sheath short or not evident, thicker shorter rachillæ and other technical characters. The genus is dedicated to Henry Prestoe, who was Government Botanist and Superintendent of the Botanic Garden, Trinidad, 1864-1886.

The genus was accepted by Wendland according to Hooker and is retained by Drude in Engler & Prantl, Die natürlichen Pflanzenfamilien, II, Abt. 3, 1889, but is merged with Euterpe by Burret in 1929 and again in 1936. It comes within the range of our present study.

Two species have been included in the genus aside from the original one brought over from Hyospathe,—*P. montana* of the island of Grenada, British West Indies, *P. Carderi* from Guatemala but apparently

known only from the plant grown under glass at Kew. Material of *P. pubigera* and *P. montana* are before me, as well as the portrait of *P. Carderi* in Botanical Magazine. We may now try to determine the main features. Until the entire Euterpe group can be studied with ample material it will be impossible to arrive at a stable conclusion, but present evidences may be traced.

The Prestoeas appear to lack a developed crown-shaft, which is an elongated leaf-sheath beneath the foliage and constituting the top of the bole or stem, from the base of which the flower-clusters emerge (see Fig. 237). If this feature (absence of crown-shaft) holds as against Euterpe, I should consider it a good generic character. Rachillæ are short and rigid, with a divaricate or horizontal direction and a swollen base as in Fig. 239 and the spadix is small and stiff; these features are conspicuous and I have not observed them markedly in Euterpe, in which the rachillæ are usually long and slender, less divaricate and often parallel with rachis, the basal swelling not so prominent. A particular mark of separation of Prestoea lies in the petals of the pistillate flower which do not have connivent valvate tips but are convolute-imbricate.

For purposes of identification and synonymy and since no new names or combinations are involved, I now account for the three palms named in Prestoea, leaving the question of generic standing in abeyance.

Prestoea, Hook, f. in Benth. & Hook, Gen. Plant. iii, 899 (1883); Drude, in Engler & Prantl, Naturl. Pflanzenf. ii, 3, 67 (1889).

P. pubigera, Nicholson, Ill. Dict. Gard. iii, 216 (1886); Drude, in Engler & Prantl, l. c.; Jackson, in Ind. Kew. ii, 623 (1895). *Hyospathe pubigera,* Grisebach & Wendl., Fl. Brit. W. Ind. 516 (1864). *Prestoea trinitensis,* Hook. f. in Bot. Mag. sub. t. 7108 (1890). *Euterpe pubigera,* Burret, in Engler Bot. Jahrb. lxiii, 53 (1930; Notizblatt Bot. Gart. u. Mus. Berlin-Dahlem, xiii, 343 (1936). Figs. 239, 240, 243, 245.

243. Flower buds at anthesis, 3 times natural size; right, *P. pubigera;* left, *P. montana.*

Small or medium-sized palm to 15 or 18 feet, the slender stem only 1½ inches diam.; leaves Geonoma-like, exceedingly variable, from simple to segmented to irregularly pinnate or at least part of the blade bearing narrow separate pinnæ, the main ribs about ¼ inch apart, surfaces glabrous and green: spathe about 16-18 inches long, 2 inches or less broad, surface glabrous or bearing only brown lepidote flecks; rachillæ very slender at dehiscence, 4-6 inches long, becoming divaricate, glabrous, the small flowers closely placed and normally in 3's; staminate flowers white, 2-3 mm. long, calyx minute and imbricate at base of the striate valvate petals; stamens 6, large for size of flower, anthers sagittate, filaments straight, pistillodium about as long as stamens and columnar; pistillate flowers smaller, calyx of broad imbricate parts, petals not connivent at apex and imbricate: fruits reddish to purple-black at maturity, about ⅓ inch cross-wide diam., with fleshy exterior, short beak below the apex and pericarp therefore asymmetric; albumen ruminate.

In mountain forests, Trinidad, abundant above 2,000 feet; summit of Morne Blue, Mt. Aripa, Mt. Tocuche. Known as "Anari," name applied also to *Geonoma vaga*.

P. montana, Nicholson, Ill. Dict. Gard. iii, 216 (1886); *Euterpe montana*, Graham, in Bot. Mag. t. 3874 (1841). Figs. 241, 242, 243, 244.

Trunk single, erect, to 10 feet or more, ringed, swollen at base: leaves to 3 m. long, evenly pinnate in many more or less alternate pairs, green, glabrous, strongly mid-ribbed underneath and a stout vein near either margin and fainter veins between; petioles about 2 feet long: spathes in axils of lower leaves (not at base of a crown-shaft), about 22 inches long, one-half the length being taken by the glabrous wing-edged primary valve, the inner or main valve thinly brown-pubescent and not winged; glabrous rachillæ about 10 inches long, closely packed with small flowers 3-4 mm. long becoming divaricate; flowers white, asymmetric; staminates with calyx very small and parts imbricate, petals valvate and striate; stamens 6, anthers only bluntly sagittate, filaments long and straight; pistillates very small, with minute calyx, petals not coherent at apex and imbricate: fruit nearly

244. FRUITS OF *Prestoea montana*, approximately natural size; N twice full size.

245. FRUITS OF *Prestoea pubigera*, twice natural size. The second picture is the nutlet taken from the pericarp; other two, cross-sections of the nutlet with micropyle at M.

globular, about 10 mm. diam., asymmetric from the short beak being lateral toward the apex, fibrous covering of the seed conspicuous; albumen ruminate.

Grenada, British West Indies. Beccari has supposed this palm to be identical with *Euterpe globosa* but it is very different from that species, as in lack of crown-shaft, smaller narrower main spathe, shorter rachillæ, apparently different aestivation of pistillate petals, smaller seed that has a different and less abundant fibrous covering. The original description calls for a glabrous main spathe but in the young one before me (Fig. 242) it is very closely scurfy-pubescent and perhaps becomes bare with age.

P. Carderi, Hook. f. in Bot. Mag. t. 7108 (1890). *Geonoma Carderi*, Bull, in List of New Plants, 9 fig. (1876); T. Moore, in Florist and Pomologist, 1787, 182. *Euterpe Carderi*, Burret, in Engler Bot. Jahrb. lxiii, 64 (1929).

Low plant as grown at Kew, the caudex nearly 3 feet high ("but will probably attain a much greater height") and "about as thick as the wrist," stoloniferous at base: leaves to 10 feet long, strictly pinnate, dark green above and paler underneath, pinnæ very narrow, plicately 7-nerved: upper or main spathe 3-4 feet long, smooth and glabrous; spadix with orange-brown tomentum, rachillæ 6-10 inches long, rigid, erect-spreading; staminate flowers with minute sepals, petals 3 mm. long and valvate; pistillate flowers with rounded imbricate envelopes, the tips of petals neither contracted or valvate; ovary ovoid and nearly straight, ovule erect from near the base: fruit not described.

"Discovered in Guatemala by Mr. Carder, a collector in the employment of Mr. Bull." Burret in Engler's Jahrbücher, cited above, attributes the palm to New Granada, which is Colombia.

ARTICLE 37. SABAL PRINCEPS.

An old puzzle among planters and botanists is the identity of *Sabal princeps*. As a botanical name it begins at least as early as 1878 when Wendland, the palm authority of his day, listed a "Sabal princeps Hort. Versch.," although without description; this citation shows that a palm under this title was grown by the Belgian horticulturist Verschaffelt.

Some years ago I went over the subsequent history in Gentes Herbarum (vol. iii, p. 329, 1934), from which I quote: "The name is listed without description in the Kew Report for 1882, 63. Again *S. princeps* Hort. Petr. is entered by Rudolf Pfister in 1892, without description, in Beitrag zur vergleichenden Antomie der Sabaleenblätter, 32. In reference to pollination, Paul Erich O. W. Knuth describes *Sabal princeps* Hort., and figures a flower in 1904: Handbuch der Blutenbiologie, iii, 65, fig. 7, 6. These notations mean that *Sabal princeps* is an old garden name."

246. Tree of Beccari palmetto, growing at Palermo, Italy. *Sabal Beccariana.*

Trees called *Sabal princeps* are in many gardens. One sees them from New Orleans to the tropics. There are several things among them. The name *S. princeps* should be discontinued in the interest of clear horticultural nomenclature. Probably at this date we cannot attach the name to a particular palm.

The only technical description of a palm called *S. princeps* appears to be that of Beccari in

1907 in Webbia in Italian; he calls it "Sabal princeps Hort." The plant he describes was growing in the Botanic Garden at Palermo, Italy; it is said to have been acquired from Linden in Belgium in 1870.

Through the courtesy of Sig. L. Montemartini I have fruits, part of a spadix and photographs of Beccari's Palermo tree. That tree does not represent palms widely distributed in the western hemisphere under the name *S. princeps*. It is impossible to make horticulturists apply the name *princeps* exclusively to the Beccari palm; such effort would only extend the confusion. The Palermo tree should have a title of its own rather than a floating horticultural designation, as one more step in the elimination of irresponsible garden names. This title I now supply.

† **Sabal Beccariana,** nom. nov. Figs. 246, 247.

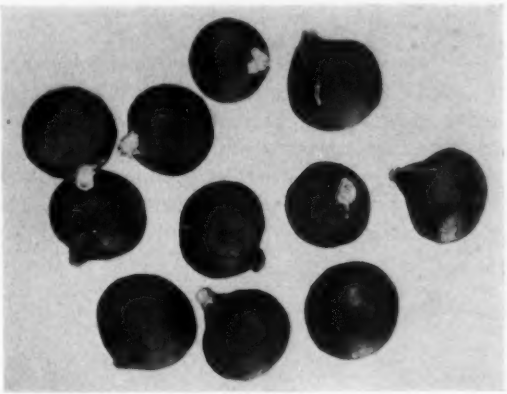
Sabal princeps, Hort. apud Becc. in Webbia, ii, 59 (1907), not auth.; Bailey, Gent. Herb. iii, 328 (1934).

Large tree with thick trunk covered by the persistent criss-cross bases of old petioles: leaves with short palman, the long segments hanging prone, the petioles very long: spadix long, narrow and hanging in fruit and much branched, the ultimate rachillæ 2-4 in. long, all parts glabrous: fruit short-pyriform, about ½ in. broad (14-16 mm.) and of similar length, main part rounded, glabrous, dark gray, the point holding the light colored accrescent floral envelopes; seed free and loose in the ripe pericarp, brown, flattened endwise, ¼ in. or a little more crosswise and three-fourths as deep (9-10 mm. × 5-6 mm.), micropyle lateral.

The pictures are from the Palermo tree. Fig. 246 is drawn from a photograph sent me, and Fig. 247 is a photograph of my own made from fresh fruits as they arrived, and which very well match Beccari's picture in t. 20 of Annals of the Royal Botanic Gardens, Calcutta, 1931.

Fuller description of this palm, translated from Beccari, may be found in the above citation of Gentes Herbarum.

Nativity of *Sabal Beccariana* is unknown, any more than that of several other palmettoes, but the genus is wholly American.



247. Fruits of Beccari palmetto. Natural size. *Sabal Beccariana.*

The problem in Sabal

Sabal is still a troublesome genus, difficult to understand. Reasons for the perplexities are mostly two: (1) the fact that seeds have been brought from unrecorded places and the resultant plants (often when only in their juvenile state) have been given names without descriptions or recognizable records, until twenty-five or thirty floating binomials are in the literature; (2) the fact that the palmettoes are themselves critical to distinguish and classify, hindered by the labor and difficulty of making useful museum specimens, the leaves being large and stiff.

Distinguishing of the kinds has rested largely on seeds and fruits. How extensive may be the variation in fruits in any species of palm is yet hardly a subject for scientific conclusion inasmuch as numerous specimens of foliar and floral and carpellary parts are not taken by collectors because of bulk and space required to house them. We do not go to the herbarium to study variations in palms, and observation of them in the field necessarily requires close knowledge of the specific lines. Yet the field is the proper place for the recognition of departures from type.

I have now been able to recognize variations in certain groups of palmettoes, and by this means have united three supposedly different species on the diversified island of Hispaniola (Haiti, Santo Domingo): Gent. Herb. iv, fasc. vii. If to observations of this kind we can add the great advantage of eliminating fugitive binomials, we shall have made progress in understanding one of our perplexing genera.

Six years ago I made an attempt to bring together the taxonomic knowledge of the Sabals: Gent. Herb. iii, fasc. vi. I recognized twenty-two species, two of the names being new. The publication has been in demand and the stock of it is now so low that its further general distribution is impossible.

In the meantime I have continued my study of the genus and have travelled far for the purpose of observing doubtful species and of collecting herbarium material. Several undescribed species are in my collections, awaiting the experience and the opportunity to publish a complete revision. The palmettoes are so common in cultivation and so abundant in nature that they invite continued attention. They are all native in the western hemisphere.